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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,347	11/30/2004	Masahiro Sakurada	121876	9530
25944	7590	08/14/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			SONG, MATTHEW J	
			ART UNIT	PAPER NUMBER

1722

DATE MAILED: 08/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/516,347	Applicant(s) SAKURADA ET AL.	
	Examiner Felisa C. Hiteshew	Art Unit 1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-102 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 41,42,46,48-50-52,58-63,74-83,88-91 and 98-103 is/are rejected.
- 7) ☒ Claim(s) 43-45,54,55,57,65-69,85 and 92-97 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>see attached paper</u> . | 6) <input type="checkbox"/> Other: ____ |

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Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

The PTOL 1449 has been received, reviewed and considered.

Claim Rejections - 35 USC § 112

2. Claims 50, 51, 58, 59, 74, 75, 86, 87, 102 and 103 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 50,58,74,86 and 102 are being considered vague and indefinite in that it describes an apparatus without and positive recitation steps. The examiner request that the invention be clarified.

Claims 51, 59, 75,87 and 103 are being considered vague and indefinite in that the claims two separate and distinct invention within one claim. A claim cannot be both method and apparatus, it must be clear by its wording that is drawn to one or the other of these two mutually exclusive statutory classes of invention. See Ex Parte Forsyth, et al 151, USPQ 55.

Therefore claims 51, 59, 75,87 and 103 are unpatentable under 35 U.S.C. 112, second paragraph as being indefinite.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 41, 42, 50 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Application No 08-078425 (Hiraishi, et al).

Hiraishi, et al teaches an apparatus for producing a single crystal with which the lowering of the oxygen concentration is conducted while pulling up is made possible. A hollow cylindrical heating element (5), which coaxially encloses the crucible, is provided with toric slits (6) approximately perpendicular to the axial direction exclusive of at least two points of electrode parts along the hollow cylindrical straight barrel part thereof. The heating element (5) is divided to an upper heat generating section (5B) and lower heat generating section (5A). The respective upper and lower heat generating sections 5A, 5B are provided with plural pieces of such perpendicular slits (7) which are approximately parallel

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with the axial direction and are alternated from both upper and lower directions. The pitches of the perpendicular slits (7) of the heating element (5) are respectively varied by the upper heat generating section 5A and the lower heat generating section 5B. The thickness of length of the hollow cylindrical barrel part of the heating element (5) is varied with the upper heat generating section (5A) and the lower heat generating section (5B), respectively. Hiraishi, et al also teaches that the bell shape-heating element by the resistance heating surrounds the crucible in the same axle. This heating element is divided into the up exoergic section and the lower exoergic section by preparing a slit in a circle in shaft orientation s and an abbreviation right angle for at two polar zones that are in alignment with the hollow cylinder shaft drum section.

The difference being Hiraishi, et al does not exactly teach a graphite heater which has two or more kinds of the upper slit having a length different from other slits and/or two or more kinds of the slower slits having a length different from other slits (i.e. 50% and 70% slit lengths). However, in the absence of unobvious results, it would have been obvious to one of ordinary skill in the art to modify and optimize the apparatus limitations, as taught by Hiraishi, et al, in order to ensure proper orientation. The motivation being that stable melting of the polycrystalline raw material held within the crucible is made possible and which is low in cost and for which the installation space is suppressed.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Felisa Hiteshew whose telephone number is


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(571) 272-1463. The examiner can normally be reached on Mondays through Thursday from 5:30 AM to 4:00 PM with Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Yogendra Gupta, can be reached on (571) 272-1316. The

Fax phone number for the organization where this application or proceeding is assigned is (571) 273-1463.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866- 217-9197 (toll-free).


FELISA HITESHEW
PRIMARY EXAMINER
AU 1722